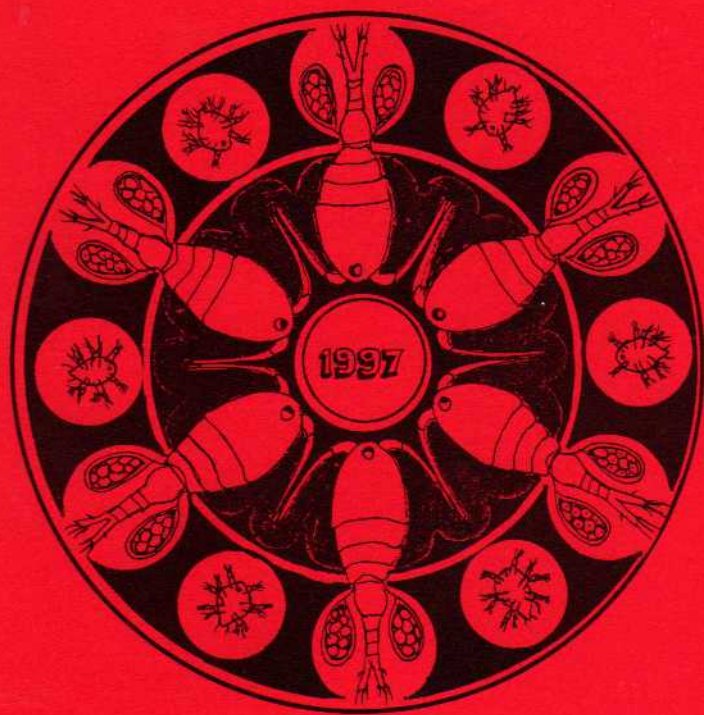


MONOCULUS

Copepod Newsletter



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MONOCULUS

Copepod Newsletter

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Edited by: Hans-U. Dahms and H. Kurt Schminke, Fachbereich 7 (Biologie), Universität Oldenburg, D-26111 Oldenburg, Germany.

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This issue has been typed by: Angelika Sievers; cover as well as cartoons by M. Pottek (Fachbereich 7, Universität Oldenburg).

Birthdays:

95: Theodore Monod
Otohiko Tanaka

90: T. Hoshina

85: Josef Eiselt

80: Maria Sergeevna Kun
Wilhelm Vervoort

75: Bernard H. Dussart

70: R.G. Ackman

R.J. Conover

Geoffrey Fryer

Kuni Hulsemann

Takeshi Kajihara

T. Marinov

Shigeko Ooishi

Fernando C. Ramirez

M. Saraswathy

Otohiko Tanaka

Stanley N. Wilkes

Deadline for the next issue of MONOCULUS: 30th September 1997

Cover: A "copepod-mandala" designed by T.R. Rao (Delhi, India)

EDITORIAL

Being visited by my young nephews - four of the six now studying engineering or business - I was asked more than once what my research "on small shrimps" is all about, and, particularly what this should be good for. I have the impression that they still keep wondering, since my explanations and arguments seemed not to be convincing. Once in a while, especially when it comes to fund-raising, everyone of us will have to face the fact that copepods have to be sold, either as being harmful (as parasites, vectors of diseases - either of humans directly or their pets and biological resources), or beneficial (as nutritive items of sea food, as predators of disease-inducing organisms, or for biomonitoring purposes), and, not the least, as a model taxon for various biological sciences themselves, like evolutionary biology, genetics, or physiology - to name only a few. In the course of a phenomenon perceived as "global change" the ocean attained growing public and scientific attention as for its role in buffering climatic changes. Its absorption capacity for CO₂, in particular, became the focus point of many international programmes. Here, pelagic copepods being the prime zooplankton in most marine situations must play their role. Their fecal pellets being encapsulated by a peritrophic membrane, which prevents leaching of organic substances and provides faster sinking, out of the euphotic zone. The journey of copepod feces and carcasses following gravity towards the bottom of the deep sea reduces the organic carbon content of upper water layers, hence recycling and reincorporation by photoautotrophic organisms. Then, additional CO₂ from the atmosphere will be dissolved - reducing the atmospheric carbon-dioxide content, and subsequently, following the mechanism described above, will find its fate in the sink of deep ocean waters. Not only copepod feces and their carcasses themselves are important in this process. Fecal pellets often contain undigested organic substances and frustules of algae (viz. Coccolithophoridae) or other protists which become accelerated in their descent by being packed to larger "parcels" in the form of zooplankton fecal pellets. Following this line of argumentation it is certainly not exaggerated that geological formations, like cretaceous shales, are in fact "copepod dunghills" (as it was emphasized in a recent article by the geologist Anna Grayson: The Times - March 14th, 1997).

We are sad to have to announce that four colleagues have passed away: Jürgen Sieg, Ulrich Einsle, Jacques Castel, and Jan Stock. Using the opportunity of the editorial page we want to emphasize that you should keep us informed about any change of address, or - what we do not hope - if you voluntarily want to leave WAC, or not being provided with the MONOCULUS newsletter anymore. Candidate members - without further notice - are requested to send short biographical notes.

Does anybody know the whereabouts of: Sabine Diel-Christiansen, T. Marinov, and Karl Steib?

After more than thirteen years of cheerful service as treasurer and co-editor of the MONOCULUS newsletter Gerd Schriever steps back from both these posts in order to have more time for his private institute BIOLAB. More than this - together with Horst Kurt Schminke, Jan Stock, Dov Por, and Carel van Vaupel-Klein he was one of the initiators of the "copepod movement".

It is not a year since we had our last "6th International Conference on Copepoda" here in Oldenburg, that there is agreement upon and effective preparations already going on at a site for the next copepod conference - Curitiba, a beautiful growing city under a subtropical sun in Parana state, southeast Brazil. We have already details provided by Rubens M. Lopes in this issue of MONOCULUS.

As additional forms we incorporate an application form for the "10th International Meiofauna Conference" and a questionnaire for all copepodologists (active or still willing to spread experience for young colleagues). This information will be necessary for an updated view (after Horst Kurt & Gisela Schminke initiated such an attempt some years ago - some back issues of the MONOCULUS directory are still available from him!) of copepodologist's activities globally. We are ambitious to make an integrated overview available together with the autumn issue of MONOCULUS 34.

It is crucial that all of you fill in the form and send it back to our Oldenburg address!!!

IN MEMORIAM**Jan Stock***** 22 February 1931 - † 17 February 1997****Stock in Science***

It is a great pleasure to have been invited to contribute to this ceremony designed to help Dr. Stock from one phase of activity into the next. I thought I knew what I was doing when I agreed to speak to you today on his contributions to the biological sciences. There is a significant overlap in our scientific interests. We both share an affection for copepod taxonomy and groundwater biology. So it happens that I have the pleasure of meeting Dr. Stock more regularly than others of my colleagues and of receiving reprints of his publications coming in at a constant high rate every year. In other words, I entertained the feeling of having a fairly complete overview over his scientific production. Dr. Stock started to publish long before me, so to prepare this address I deemed it wise to ask for his complete list of publications. To go through it took me much longer than the time actually allocated to me for this address and it added hitherto unrecognized facets to my picture of his scientific achievements (a biography is available from S. Weinberg & W. van Zijl, 1990: see Literature).

When he was a student maturing into a young scientist the „Synthetic Theory“ was in the making. This offered a host of intriguing problems for research attracting many of the best of his generation to the fields of systematics and zoogeography. Describing new species and higher taxa, studying their adaptations and phylogenetic relationships using evidence from morphology, ontogeny, and distribution, investigating speciation problems, seeking explanations for the immense diversity of life in form and habits were considered fascinating topics worth scientific scrutiny. Today they have lost much of this attraction, quite paradoxically so, because in recent years evidence has been accumulating that species diversity on earth is even orders of magnitude greater than has been anticipated. While this is recognized much of this diversity through human interference with nature is on the brink of extinction before even having entered scientific records. To cope with this situation is almost impossible because the biological sciences world-wide have gone through times of rigorous one-sided orientation away from systematics and the study of diversity. Scientific standards have been lost in the process that are difficult to regain quickly. In such a situation one would rather like to see a man of such personality, productivity, and inspiration as Dr. Stock enter the scene rather than preparing his retreat.

Dr. Stock has published mainly on Crustacea although from the very beginning along with copepods and gammarid amphipods he also specialized in the study of Pantopoda which are related to spiders and scorpions and the like. All these, I tell you, are rather bizarre creatures, particularly so the Pantopoda and parasitic copepods. Pantopoda are as their name implies almost all legs with only a narrow body in between. They have no space for their entire gut and reproductive organs so that these have to withdraw into the legs. The male carries the eggs and has special legs for this. Even more queer are many of the copepods which parasitize or live associated with other aquatic invertebrates except, if I am right, the Pantopoda. These copepods occur in a bewildering diversity of shapes and adaptations. There is nothing else in

*Address delivered on the occasion of the retirement ceremony for Prof. Dr. J.H. Stock in the auditorium of Amsterdam University on 22 October 1990.

nature that rivals them in this respect except perhaps sperm cells. Don't think of our own dull tadpole-like sperm, look up in a book on insect or crustacean sperm for that matter and you will see what I mean. Some of the copepods are so transformed that as adults they cannot even be recognized as copepods. In fact, in former times some of them have been mistaken for molluscs. Compared with them amphipods can be called a decent group for lack of such eccentrics. Dr. Stock has worked on all three groups all his lifetime, and is a leading authority in the world in all three of them. Such expertise in several different groups at a time is the exception today. If I have counted correctly, apart from a few papers written on isopods and therosbaenaceans, two other groups of Crustacea, he has produced 123 publications on copepods, mainly parasitic ones, 102 on amphipods, and 78 on pantopods. Whoever studies these three groups in the future will not be able to do so without knowing and considering Dr. Stock's basic contributions to their knowledge. I know, those who denigrate our science envy us this bit of immortality because their own papers rarely survive the next five years.

In the early seventies a major shift took place in Dr. Stock's scientific interests. All of a sudden papers appear on the groundwater fauna of the West Indies which culminate in a long series of publications by Dr. Stock himself and other authors under the heading of „Amsterdam Expeditions to the West Indian Islands“. It all started in 1973 as Dr. Stock told me in an interview recently for our copepod newsletter when he was working on parasitic copepods of coral reefs in Curaçao. There was the rumour spreading in the population that the groundwater grew saltier and saltier because Shell Oil raffineries pumped up too much water for cooling.

Therefore the company looked for an independent expert who could compare the actual groundwater fauna with results of an investigation carried out in the early thirties. Dr. Stock became interested and during his survey discovered so many remarkable species that he started to ask for grants.

For more than ten years a team of young scientists around him, occasionally assisted by specialists from elsewhere, sampled in a more or less systematic and standardized way groundwater habitats such as cave waters, springs, wells, interstitial water of beaches and river banks of over 50 islands. Whereas Dr. Stock's previous work apart from its systematic background had an ecological aspect, the emphasis now is on zoogeography. Compared with what had been done before in this field it stands out as the biggest coherent project of its kind. Others had worked on single groups of organisms and tried to find an explanation for their current distribution using geological and paleogeographic data, but none has concentrated on one zoogeographically highly interesting area and made an exhaustive study of its groundwater fauna under zoogeographic aspects like Dr. Stock and his team of co-workers. This project, I am sure, will once be regarded as a classical study not only in groundwater biology but in zoogeography as well. Also such surveys are of immense importance when it comes to evaluate possible environmental changes in future times.

So far, what we can extract with a little background knowledge from Dr. Stock's list of publications. But such lists don't tell us all about a scientist, at least they should not. Science cannot work without people willing to sacrifice some of their time to serve general functions. Dr. Stock has done more than others also in this respect and of the many functions he had over the years I want to mention only two: his role as editor of scientific journals and as an active member of our little society, the „World Association of Copepodologists“. Dr. Stock has been chief editor of several journals but two of them have come into existence through his own initiative. Both have had a stimulating and unifying effect in bringing together as in the case of „Crustaceana“ what had been scattered widely over the scientific literature before and in reviving as in the case of „Stygologia“ what had gone through a phase of stagnation and lack of orientation. Crustacean studies and groundwater biology are lively disciplines today and

Dr. Stock is in the forefront of those who are responsible for this. Copepodology owes him a lot as well. Let me finish with this little parochial comment. He organized our first international conference here in Amsterdam and served as the second President until the end of our fourth meeting in Japan in September this year.

Innumerable people have benefited from him as readers of his publications, as listeners to his lectures, as participants in his scientific activities, as receivers of valuable material from his expeditions, as authors of his journals, as members of organizations and institutions for which Dr. Stock has been active. I have always admired him for managing to combine so many diverse activities and responsibilities at a time and still be a cheerful person. Some of the things he did I would have also liked to do, but he has always been more efficient and more successful. Even though we have never competed directly I have sometimes felt like the hare in the fairy tale about the race between hare and hedgehog. Whenever the hare arrived full speed at one end or the other of the furrow along which he raced across the field to beat the hedgehog he always found him (or his wife) there shouting at him: "Ick bün all hier." So it is with Jan. While I am struggling hard myself to reach retirement to get things done unmolested by all sorts of sticky commitments, here is Jan already able to call: „Ick bün all hier.“

H.K. Schminke, Oldenburg

IN MEMORIAM

Ulrich Einsle

* 24 April 1935 - † 24 December 1996

Ulrich Einsle was not only a scientist with heart and soul, but also an athlete when he was young, his favourite disciplines being high jumping and sprints. He was highly interested in history and he also was a musician, to be exact, he played the accordion. In his student days Uli made dance music with his trio in the distinguished "Parkcafé" and in the villa "Haus Margarete" in Konstanz. Ulrich did joinery, partly rebuilt and completed his house in the "Sonnentauweg" and even put in a fire-place all by himself. He also liked working in the garden. As a scientist he knew how to quiet the croaking frogs in his pond when neighbours were complaining. What he did not like at all was to repair the car or to tinker at engines - apart from that he was an all-purpose man. Ulrich distinguished himself in the mid-sixties in the public discussion on the conservation of the threatened water of Lake Constance. He contributed to the monitoring programmes of the "Internationalen Gewässerschutzkommission für den Bodensee" [International water monitoring committee for Lake Constance]. From 1975 to 1980 he was even a member of the Konstanz municipal council as a representative of the "Konstanzer Freien Wählergemeinschaft" [Free Electors' Initiative of Konstanz]. Owing to his knowledge and experience in biology and freshwater fauna he became the nature protection expert of the district of Konstanz. In all of these honorary functions he threw off his modest reservedness and committed himself to the public welfare with enthusiasm and success.

Ulrich Einsle was born in Konstanz on 24 April 1935 and graduated from the Humboldt secondary school in 1954. He studied biology, chemistry and sports in Freiburg. The first impulses for his future scientific career came from Professor Friedrich Kiefer, the Grand Old Man of copepodology, who was his biology teacher. Uli completed his doctoral thesis on the genus *Cyclops* in Lake Constance in 1963 under the supervision of Professor Hans-Joachim Elster and Professor Kiefer. As a doctorand he already worked at the "Anstalt für Bodenseeforschung" in Konstanz [Institute for research on Lake Constance], temporally as a

scientific assistant. After taking his doctor's degree in February 1963 he worked with Professor Kiefer in a private employment holding a scholarship by the German Science Foundation. On 1st April 1966 the institute was put under municipal administration and he became a municipal employee of the town of Konstanz. When the "Anstalt für Bodenseeforschung" was put together with the "Landesanstalt für Umweltschutz" [Federal institute for environment protection] in Langenargen on 1st January 1970, Uli became a federal official. In 1982 he became the head of the branch office in Konstanz-Staad. In the summer of 1995 he moved to his new office in Langenargen. The main function of the federal institute is water monitoring in the federal state of Baden-Württemberg, especially the monitoring of Lake Constance.

However, Ulrich was always devoted to the taxonomy, systematics, and ecology of cyclopoids, which is demonstrated by his publications from 1959 until 1996.

Cyclops s.str., which was considered a taxonomically very problematic genus all along, was in general recorded and classified morphometrically. Ulrich regarded this an unrenounceable method to describe a population at a certain moment. Applying chromatin diminution for the systematics of *Cyclops* s.str. allowed for an exact determination on a species level, although quantitative statements are not possible as yet. As a valuable tool for population analysis he lately applied enzyme electrophoresis which - combined with the two other methods - yielded quite surprising details. Uli focused his ecological research on the question of how daily periodicity influences the developmental rate of some *Cyclops* species. Owing to his rich collection of material he succeeded in proving the expected relationship in his experiments. He also investigated the annual occurrence of pelagic copepods, their vertical and horizontal distribution as well as their daily migrations in Lake Constance "Obersee", "Untersee-Gnadensee" and "Rheinsee", and particularly in the "Buchensee" and "Mindelsee". Besides this work he helped supervising diplomands and doctorands in the field of limnology.

Until a few weeks before his death Ulrich was busy completing scientific articles and he lived to see them published. He was very happy about dedicating *Cyclops heberti* to his Canadian friend and colleague Paul Hebert and about completing his contribution to the "Guides to the Identification of the Microinvertebrates of the Continental Water of the World" (H.J.F. Dumont) for determination of *Cyclops*, *Megacyclops*, and *Acanthocyclops*. He wanted this volume by all means to be published before the Conference on Copepoda in Oldenburg. Plans for other contributions to the "World Guide" and for other monographs of American and African cyclopoids, however, had to be abandoned.

Unfortunately, I came to know Uli very late. He was a kind man who never wanted to thrust himself forward with his qualities. Whenever I paid our friends in Allensbach a visit, we met in the institute or in the near-by restaurant "Schiff" directly at the landing stage of the ferry to Meersburg. I will badly miss these friendly conversations with Uli.

In the last years of his life Ulrich suffered from cancer of the tongue. He endured the post-operative consequences very, very patiently. The cancer, which he fought for more than three years, finally deprived him of speech. When I last met him he communicated with me on scraps of paper.

The radiotherapy had awful consequences. Every operation filled him with new hope, but ended up in disappointment.

Ulrich Einsle died on Christmas Eve 1996. He died much too early at an age of 61. His death is a painful loss to his wife Helga, his son Oliver, who also studies biology, and his 91 year-old mother Hildegard, who can still be found pulling weeds in the garden.

Thomas Glatzel, Oldenburg

Ulrich Einsle - *A remembrance*

Ulrich Einsle died on Christmas Eve, 1996 after a three and half year long illness with cancer. He sustained his interest and work in freshwater cyclopoid copepods until the very end. He is survived by his wife Helga, his son Oliver, and his mother. Oliver is a student at the Max-Planck Institut für Biochemie and has chosen a career in biology in the hope of joining the fight to find a cure for cancer.

I first met Uli at the WAC meetings held in London. We disagreed about the mechanisms and underlying causal factors controlling diapause and during the conversation a mutual interest in chromatin diminution was discussed. This trait involves the fragmentation and elimination of chromosomal fragments in the presomatic line during embryogenesis, and at that time Uli had described this phenomenon in numerous *Cyclops* species. I had been very interested in the trait for several years, but had no hands on experience in how to recognize or study the trait. All of my learning had been obtained by reading. Uli invited me to his laboratory in Germany where he promised to teach me all he could about the subject.

Two years later, Uli hosted a marvelous week long visit to his laboratory in Konstanz. We visited many of the local aquatic sites, collecting cyclopoids to squash, and then returned to the lab in the afternoon and evening to squash and stain animals. We enjoyed many conversations at his lab bench, which overlooked Lake Constance. His wife Helga hosted several dinners and both did so much to make me feel welcome. I wanted very much to witness „chromatin diminution in the act“ using the microscope and didn't want to leave his laboratory until I saw it. We made many squashes, as it is a trial and error process, and on the last day of my visit, we saw it! It was very exciting for me and this experience launched a new research programme to study the function and distribution of this unusual trait.

I was amazed at Uli's breadth of interests and productivity throughout his career. His formal job responsibilities required extensive monitoring of zooplankton populations of Lake Constance. Yet he consistently published numerous taxonomical and ecological articles that will continue to be among the most useful sources for many copepodologists on the European continent and beyond. His idea that the timing of chromatin diminution might be a reliable indicator of species boundaries in certain taxonomically confusing *Cyclops* species was a novel idea which remains to be tested. Uli often worked alone, but was very willing to share his expertise and time. I wish we all had more time with Uli, as his dedication to copepodology and the quality of his contributions is an inspiration to all of us. I hope that new students of copepodology will learn to recognize and appreciate his contributions and that he will have a successor who continues his tradition of fine work which will only advance the discipline of copepodology.

Grace Wyngaard, Harrisburg

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IN MEMORIAM

Jürgen Sieg

* 01.09.1946 - † 14.08.1996

Jürgen Sieg was one of us even though he was not a copepodologist. He died in Lohne not far from Oldenburg ten days after our last conference on Copepoda. He had hoped to be able to participate. We had sent him the conference poster with the signatures and greetings of many of us. It was put on the wall at the footend of his bed. The pastor thought that he had been working on copepods and was surprised to learn that this was not the case. We told him about the "Crustacea Database" and all the efforts Jürgen Sieg had devoted to the section on Copepoda. The database is dormant now. The Copepoda section had advanced very far but not as far as that on the Tanaidacea, the group on which Jürgen Sieg worked himself.

Like most groups of Crustacea also in Tanaidacea more species remain to be discovered than are actually known. Activities have just been started to explore the vast expanses of the deep sea where according to J. Sieg new species of Tanaidacea are to be expected in great numbers. In the shelf regions around the continents Tanaidacea is not a diverse group. This is one of the reasons why their study was first undertaken by isopodologists. There was no true specialist for Tanaidacea until Karl Lang came along and decided to concentrate on them after his impressive work on Harpacticoida. But even after 20 years of work when Jürgen Sieg visited him in Stockholm as a young PhD student he still had the feeling of lacking the key for a proper understanding of the taxa relationships within the Tanaidacea.

Despite Lang's efforts Tanaidacea therefore was still a problematic group when J. Sieg started to work on them but he was full of optimism to overcome the difficulties because K. Lang had laid the foundations and opened many doors through which as J. Sieg confessed later he only had to go. The way was paved with extensive taxonomic work. His PhD thesis (1973) and the two monographs on Pseudotanaidae (1977) and Tanaidae (1980) prepared the ground for the reconstruction of the phylogenetic relationships within Tanaidacea which he presented as part of requirements for a Dr. habil.

When this was accomplished he could turn to work on regional faunas which he undertook with partners in the United States. With R. Heard he studied the Tanaidacea of the Gulf of Mexico and during a one-year stay at the Smithsonian Institution in Washington (1985/86) he worked on Tanaidacea from the Antarctic. He also took part in two cruises to the Antarctic, one with RV "Meteor", the other with RV "Polarstern". Again a lot of detailed taxonomic

work had to be done before he could summarize the results in a discussion of the age and origin of the crustacean fauna on the Antarctic shelf. Together with J.W. Wägele he was editor of a series of monographs "Antarktisches Benthos" which was preceded by a field guide "Fauna der Antarktis" edited by the same authors.

For those who knew J. Sieg as a boy all this came as a surprise, because he started off as a devoted hobby entomologist who had a keen interest in beetles (in particular Carabidae and Curculionidae). As a schoolboy he regularly travelled from his native town Lübeck to Hamburg to take part in entomological activities there headed by G.A. Lohse, a famous German entomologist. It was therefore out of question that he would go to Hamburg University to study biology and there was no doubt that he would finish with writing a thesis on beetles. But then he went to Kiel to continue his studies and all of a sudden insects were replaced by Crustacea. Beetles continued to play a role in his later scientific activities, in particular in connection with environmental and conservation projects where he concentrated on the study of Elateridae. In Kiel he started a PhD project on Tanaidacea under the supervision of W. Noodt, and after his visit to K. Lang it did not take long before his thesis was finished. He then worked as a highschool teacher at the Nordseegymnasium in St. Peter-Ording on the North Sea coast, before he went to the University of Osnabrück, Abt. Vechta, as a Research Assistant. At the end he was Professor there.

He threw himself again with great enthusiasm into the study of Tanaidacea and started to issue the "Tanaidacea Newsletter". At the same time he began to build up the "Crustacea Database" which started off as being a "Tanaidacea Database" containing all the information on this group scattered widely in the literature. The database was used to produce the part on Tanaidacea of the Catalogus Crustaceorum (1983). The database then was expanded in collaboration with other specialists to contain information on Euphausiacea, Decapoda, Isopoda, and particularly on Copepoda. Already as a PhD student J. Sieg had started to use computers to collect data from the literature and had written the programmes himself to suit his own particular needs. He did pioneering work in this respect as a systematist in Germany. Despite all J. Sieg's time consuming efforts the "Crustacea Database" remained a torso, because the time was not ripe in Germany for unreserved support of his visions.

Times are now changing. His expertise and indefatigable activity would now be needed. Also with the advent of extensive deep sea studies he leaves a huge gap. He predicted Tanaidacea to be a very diverse group in the deep sea. Now that programmes are under way to explore its fauna it would be reassuring to know that there is someone with his knowledge and expertise to rely on.

He died of a brain tumour not long before his 50th birthday on August 14, 1996. He left his wife Angelika and two grown-up children, Rebecca and Daniel. A year before his death he gave his collection to the Museum für Naturkunde in Berlin.

H.K. Schminke, Oldenburg

IN MEMORIAM Jacques Castel

Jacques Castel, meiobenthologist at the Marine Station of Arcachon, France, died suddenly on January 12, 1997 from cardio-vascular problems. He was only forty-five and no one among his family and colleagues could expect such a tragic end. After preparing his Ph.D. thesis in Pierre Lasserre's laboratory, Jacques spent all his career as researcher at the Laboratory of Biological Oceanography at Arcachon. His research topics were the dynamics

and ecological adaptations of the small metazoans in lagoons and estuaries; actually, most of his studies dealt with copepods in the eutrophic ecosystems along the French Atlantic coast, especially the Gironde Estuary and Arcachon Bay. Jacques was both a zooplanktologist and a meiobenthologist, but, above all, he was a copepodologist. I do not know if he really loved "his" copepods (we often joked about their intellect), but I know he soon realized how copepods, either pelagic or benthic, could be valuable models for studying and understanding the fundamental principles of marine ecology. During his too short career he published a hundred papers and supervised some twenty Ph.D. students. He also participated in several national and European programmes. Jacques was a quiet man and a good scientist. I, and many of us, lost more than a colleague.

Guy Bachelet, Arcachon

Notice from the WAC Executive Council

According to ARTICLE 13 of the WAC's By-laws, amendments to the Constitution and By-laws can be made "only by two-thirds majority of members in good standing present at a business meeting or voting in a mail ballot". However, recently, the Executive Council has unanimously passed two amendments to the WAC Constitution/By-laws due to the development of the following emergency situation under an unusual circumstance:

WHEREAS the exchange rate between U.S. Dollar and Deutsche Mark is ever fluctuating and the WAC has been losing its funds every time when a conversion was made between the two currencies, and

WHEREAS the costs for publication of MONOCULUS increased 100 % from US \$ 2.00 to US \$ 4.00 per year per member (see MONOCULUS 31:18),

IT WAS RESOLVED that the WAC was to open a bank account in U.S.A. to protect its funds and the Treasurer duly applied to the U.S. Internal Revenue Service (IRS) in November 1996 a tax exempt status for the WAC funds to be kept in a U.S.A bank account.

HOWEVER, the IRS requested on 12 January 1997 (received by WAC's Treasurer on 18 February) that, in order to receive a tax exempt status, two changes were to be made to WAC's Constitution/Bylaws and the amended new document, to be signed by at least two officers, was to be on file no later than 5 March 1997.

BE IT AS IT MAY, the Executive Council resolved to comply with the stipulations specified by the IRS to amend the "PURPOSE" in the Constitution and "Article 14: Dissolution" in the By-laws as follows:

PURPOSE

- A. The purpose for which the Association is organized are exclusively scientific and educational within the meaning of Section 501(c) (3) of the Internal Revenue Code of 1986 or the corresponding provision of any future United States Internal Revenue Law.
- B. Notwithstanding any other provisions of these articles, this organization shall not carry on any activities not permitted to be carried on by an organization exempt from Federal income tax law under Section 501(c) (3) of the Internal Revenue Code of 1986 or the corresponding provision of any future United States Internal Revenue Law.

Article 14: Dissolution

Upon the dissolution of the organization, assets shall be distributed for one or more exempt purposes within the meaning of Section 501(c) (3) of the Internal Revenue Code of 1986, or

corresponding section of any Federal tax code, or shall be distributed to the Federal, state or local government for public purpose. Any such assets not so disposed of shall be disposed of by a court of competent jurisdiction of the county in which the principal office of the organization is then located, exclusively for such purposes.

Ju-shey Ho, Long Beach

Interviewing Copepodologists

José Bresciani

José Bresciani was born on the 22nd May 1926 in Lima/ Peru as son of Italian emigrants from his father's side and Spaniards and Peruvians from his mother's side. In Lima he went to an Italian private school where he got a classical education, learning among others Latin and Greece. Later, he studied fine arts at an Austrian art school in Lima. He left Peru in 1947 to France and since his matura was equivalent to the French and he was particularly attracted by the French culture, he enrolled in 1950 at the Sorbonne in Paris for a propedeutic course in biology. When he got acquainted to his later wife Agnette, he moved (1952) to her hometown Copenhagen which then became his permanent place of residence. As a magister student of biology he worked for the "Danish Fishery and Research Institution". It was then that he could participate at the Dana III yearly cruises to the Faroer Islands and Greenland. In 1963 he graduated in "Comparative Anatomy of Invertebrates", as a Magister of Science cumulatively with five papers on copepod taxonomy and anatomy. Most of his studies he made during a stay at the Helsingör Marine Biological Laboratory headed by Gunnar Thorson those days. During the years of studying primarily copepods collected from the Gulmarfjord area of Kristineberg Station he got introduced to Karl Lang and Gösta Jägersten from Stockholm. In Kristineberg he met Peter Ax (then Kiel) and Adolf Remane the first time, both studying the interstitial fauna of sands. From 1963-68 José Bresciani worked in the "Institute for Comparative Anatomy" in Copenhagen under the director K.G. Wingstrand. From 1968 until today he has been working at the Royal Veterinary Institute for Ecology and Molecular Biology/ Section Zoology, holding one of the chairs of zoology until his retirement.

This post has been coupled with heavy teaching obligations. "At times we had up to 400 students per year", José Bresciani explains. Still, he published more than 130 papers in his professional life and is still very busy, even more so since becoming Emeritus on his birthday, the 22nd May 1996. On copepod anatomy he worked together with I. Lützen (Copenhagen), Hans Dahms (Oldenburg), Lucianne Laubier (Paris), K. Nagasawa (Japan), and A. Fosshagen (Bergen). "We all know that you worked on various aspects of copepod anatomy and morphology, being especially attracted by those parasitic copepods which are hardly recognizable as Crustaceans at all", I remarked during a Sunday



morning breakfast in his cosy home in Holte near Copenhagen. "But your record is much wider". "Well" - José uttered - "being a parasitologist among approximately 15 colleagues in the Copenhagen area (most of them belonging to a "Center of experimental parasitology") I became involved in ultrastructural studies of the Mesozoa (together with T. Fenchel), various Plathelminthes, as well as Nematelminthes. The use of fungi in the biological control of nematodes or insects became another "hot subject". Presently, besides comparative studies on the copepod gut and the naupliar development of symbiotic copepods, I am involved in joint work on the composition of the cuticle of Nematelminthes".

Personally, José Bresciani certainly is an artistic person, since he was always being interested in forms, structures, and colours. He thinks in images as he claims himself. As a child he was particularly fond of insects because of their diverse morphology and coloration - all this exhibited at miniature scale. His favoured artists are Mondrian, Kandinski, Klee (and his "magical wall"), and especially Italian artists. During his time in Paris he studied initially also fine arts, especially cubism and modern arts. Later, he became fascinated by precolumbian cultures during a recent journey through Mexico and Guatemala. As for the "haute cuisine" he enjoys the best meals from all countries, particularly the Spanish, Italian, French, and Japanese kitchen.

He feels good in Denmark - although being a "Mediterranean-type of person" - the calmness of northern mentality becomes boring at times. The more he enjoys holiday journeys to the south - but always being happy when back at home, as he ensured. More unusual for a biologist, he was actively demonstrating against the Vietnam War. He was signing the Russell Tribunal II. As a liberal democrat he is generally for personal freedom and against dictatorship and any doctrinary system.

José Bresciani has two sons, one daughter and altogether six sweet grandchildren. For the past 26 years he has been accompanied by Vibeke Dantzer, a Professor for veterinary anatomy at the same university. Both share their interests, before all in science and zoology, and among others in arts, travelling, and kitchen skills. Here - as I could experience - the couple as a team produce creatively delicious meals of various kinds.

Being asked for his personal fate after being retired he explains that he was offered a large, brand-new laboratory, including a technician at his side, where he could move even four months after his retirement. This is certainly a reward for more than three decades of research and teaching, keeping good contacts to the university, and being the author of the only Danish textbook on "Invertebrate Zoology".

"On the other hand - systematic and morphological research is needed as the base of all biology", José claims, "the nicest curves on, lets say, the dynamics of parasite infection rates explain little when neither hosts nor parasites have appropriate names, based on their phylogenetic relationships, or the organ and tissue affected and structural as well as functional alterations are unknown. And, adding the least, morphology will always be needed for documentation and illustration". These being aspects that convinced Danish authorities to continue sponsoring anatomical research, especially on the Crustacea which has a long tradition in Danmark, before Bresciani, Lützen, and Høeg with *e.g.* Kroyer, Steenstrup, Lütken, Heegard, Levinsen, Stephensen, Hansen, and Wolf.

Hans-U. Dahms, Oldenburg

ANNOUNCEMENTS ANNOUNCEMENTS ANNOUNCEMENTS

..... next Copepod Conference in Curitiba (Brazil)

The *ad hoc* Committee on the 1999 Conference site (formed by WAC Officers) decided that the next International Conference on Copepoda will be held in Curitiba, Brazil. The Local Organizing Committee is formed by prominent copepodologists, including our colleagues Carlos Rocha, Francis Dov Por, Monica Montu, and Tagea Björnberg, among others. We have already launched several activities related to the local arrangements for the conference, but we also would like to have colleagues from abroad giving an effective collaboration on relevant international issues.

We would like to have you taking part in this global effort as a member of the International Organizing Committee of the conference. If you kindly accept our invitation, we will ask for your support for the following tasks:

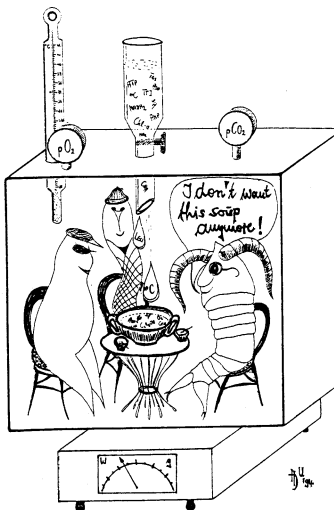
1. To help broadening the participation of copepodologists in the 1999 conference and in WAC. This can be achieved by a joint effort to update the copepodologists' addresses from your region (country, sub-continent or continent) and by your effective participation in the process of advertising not only the conference itself but also our World Association of Copepodologists. We would like to have as many colleagues as possible joining WAC and coming to Brazil in 1999.

2. To select titles for the special symposia. At present, the following subjects were suggested by some of our colleagues: molecular biology of copepods; ontogeny and phylogeny of copepods; copepods in tropical and subtropical ecosystems; role of copepods in the global carbon cycle; copepods in estuarine and coastal lagoons. We must choose only four titles from the list. Please send your own suggestions.

3. To share your own experience in organizing scientific meetings and to give us feedback on the „shape“ of the conference itself, based on your impression from the previous conferences.

Thank you for your kind attention regarding this matter. We hope to have the opportunity to interact with you during the following years.

Rubens M. Lopes, Curitiba



FIRST CIRCULAR

VII INTERNATIONAL CONFERENCE ON COPEPODA

Period: 25-31 July 1999

Curitiba, Brazil

We have the pleasure to announce and invite you to attend the VII International Conference On Copepoda, to be held in Curitiba, Brazil, during the austral winter of 1999. The Conference will cover several aspects of copepod research, including taxonomy, phylogeny, ecology, zoogeography, ecophysiology, biochemistry and genetics, with emphasis on recent findings and up-to-date discussions. Our meeting is sponsored by the World Association of Copepodologists (WAC) and hosted by the Federal University of Paraná.

We look forward to meeting colleagues from all around the world and to offer an interesting and productive environment with plenty opportunities for a fruitful exchange of ideas.

PRELIMINARY PROGRAMME

Special symposia are scheduled for every morning (2 simultaneous sessions each day) while poster and oral presentations (POP) will be held after lunch time. We will follow this plan from Monday through Friday, except on Wednesday when a mid-conference excursion will be organized. Other scientific and social activities are listed below. Please notice that a more detailed programme will be available in one of the next issues of MONOCULUS, together with registration and abstract forms.

Sunday, 25 July	Registration (afternoon); informal cocktail (evening).
Monday, 26 July	Official opening of the conference, special symposia (morning); POP (afternoon); Musical Evening.
Tuesday, 27 July	Special symposia (morning); POP (afternoon); Copepod spotlights: video presentation (evening).
Wednesday, 28 July	Mid-conference excursion to Paranaguá (Atlantic rainforest and coastal area); Maxilliped Lecture (late afternoon).
Thursday, 29 July	Special symposia (morning); POP (afternoon); WAC business meeting (late afternoon).
Friday, 30 July	Special symposia (morning); POP (afternoon); plenary discussion-Copepodology in the next millennium (late afternoon); Conference dinner (evening).
Saturday, 31 July	Short-duration workshops.

English is the official language of the conference, both for oral and poster presentations. No translation facilities will be available.

SPECIAL SYMPOSIA

After several consultations, we are proposing the following symposium subjects. Once we receive more feedback and after contacting the potential conveners, the final list should boil down to eight topics.

1. Methods and points of view for a modern phylogeny of copepods
2. Coevolution in symbiotic copepods
3. Biogeography of copepods: a cross-section of the major taxa
4. Sexual dimorphism in copepods
5. Copepods in highly productive *versus* oligotrophic marine environments
6. Copepods in Antarctic and Subantarctic ecosystems
7. Copepods in challenging environments
8. Copepod trophic interactions and biogeochemical cycles
9. Anabiosis and copepod resting eggs

PRE- AND POST-CONFERENCE ACTIVITIES

There are several pre- and post-conference activities under consideration, in Curitiba and different other localities in the country. Separate information about these events will be published soon.

FIRST INFORMATION ABOUT CURITIBA

Curitiba is the capital of Paraná State, located in Southern Brazil (about 25°S). The city is situated at 905 m above sea level and its name derives from the Guarani "Plenty of Araucaria" (the typical pine tree of Paraná). It has a sub-tropical Mediterranean climate with temperatures ranging between 5 and 25 °C (average ~ 13 °C, or 55 °F) during July-August (wintertime).

Even though Curitiba has been one of the fastest growing Brazilian cities during the last thirty years (with around 1.5 million inhabitants nowadays), the city has managed to expand while keeping a good quality of life. Consistent planning and innovative urban solutions have transformed Curitiba into an example for other Brazilian cities (see the March 1996 issue of Scientific American for further information on urban planning in Curitiba). Today, Curitiba provides an excellent ratio of green area per inhabitant - 52 square meters (560 square feet) - thanks to its large urban parks and recreation areas. The transportation system is one of the most appealing features of the city: it includes a new international airport, an integrated road network, an express bus system and other facilities. The cultural life is also constantly expanding through the addition of new cultural spaces. At the same time, the city has several programmes devoted to preserve its 300-year heritage, including among many aspects, the deep influence of European, Asian and other immigrants in the city's economic and cultural life.

THE ORGANIZING COMMITTEE

Local Organizing Committee:

Rubens M. Lopes (Local Secretary)
 Carlos E.F. Rocha
 Francis Dov Por
 Maria Scintila Almeida Prado-Por
 Maryse Paranaguá

Monica Montú
 Nelson dos Santos Silva
 Odete Rocha
 Tagea K.S. Björnberg
 Walter Boeger

International Organizing Committee:

Anna Pasternak (Russia)
Geoff Boxshall (England)
Supawadee Chullasorn (Thailand)
Hans-Uwe Dahms (Germany)
Hans Verheye (South Africa)
Janet Reid (U.S.A.)
Jefferson Turner (U.S.A.)
Shin-ichi Uye (Japan)

Contact address:

Rubens M. Lopes
Centro de Estudos do Mar,
Universidade Federal do Paraná
Trav. Alfredo Bufren 140, térreo
80.020-240 - Curitiba (PR)
Brazil
Fax: 55 41 455-1105
Voice: 55 41 455-1333, ext. 32
e-mail addresses:
rmlopes@aica.cem.ufpr.br (office)
rmlopes@cwmb.matrix.com.br (home)

FIRST CIRCULAR

World Association of Copepodologists

Special international conference: New methods in copepod taxonomy

Host: Zoological Institute of Russian Academy of Sciences

Dates: May 4-8, 1998

Location: St.-Petersburg, Russia

Topics: The central goal is to bring together researchers dealing specifically with morphology as it relates to taxonomy in various groups of copepods, in order to better delineate species. New and rare methods are of particular interest: DNA analysis, chromosome analysis (chromosome diminution especially), enzyme analysis, hybridization of closely related species, larval analysis, etc.

Other topics include discussing the variability and taxonomic value of characters used in describing copepods to validate the many new species that have been described in the last decades based on morphological details mainly.

In the context of this meeting two workshops are planned:

1. Chromosome diminution, 2. Hybridization techniques using the Fischer's cyclopoid species.

The conference and the proceedings language will be English.

The conference is dedicated to the memory of Dr. Ulrich Einsle.

The second circular, giving details of registration and abstract submission, will be sent in August to those who have expressed their interest.

Contact: Victor Alekseev or Elena Markhaseva
Zoological Institute of Russian Academy of Sciences
199034, St.-Petersburg, Russia
Fax: 7-812-114-0444; avr@zisp.spb.su

We prefer your response via e-mail !!!

Eigth Deep Sea Biology Symposium

Monterey, California, U.S.A., 22 September - 27 September, 1997

The 8th Deep Sea Biology Symposium (DSBS) has been moved to Monterey, California, in consideration of the one year delay required to host the event in Galway, as originally planned during the 7th Symposium at Crete. The 8th DSBS will be co-hosted by Monterey Bay Aquarium Research Institute (MBARI) and Monterey Bay Aquarium (MBA), and is tentatively scheduled for the 22nd through the 27th of September 1997. Monterey is a beautiful setting for the 8th DSBS, and we invite all of the deep-sea scientific community to attend and enjoy the symposium, associated events, and leave a bit of time to explore the central California coast.

Symposium Format

The format for the DSBS will be similar to earlier meetings, including both oral and poster presentations concerning deep-sea organisms and ecosystems. We invite papers on any related topic, and are particularly interested in presentations relating to processes influencing the function and organization of deep-sea communities or populations. Themes of interest include, but are not limited to:

- Diversity, Adaptation, and Evolution of Deep-Sea Biota
- Patterns and Function of Deep-Sea Populations and Communities
- Source and Utilization of Carbon Inputs in Deep-Sea Systems
- Metabolic or Physiological Studies of Deep-Sea Biota
- Microbial Processes in Deep-Sea Habitats
- Deep-Sea Pelagic Community Studies
- Sedimentation and Diagenesis in Deep Ocean Habitats
- Reproduction in the Deep Sea
- Interdisciplinary Studies in Deep Ocean Settings (JGOFS, ...)
- Studies of Specialized Habitats (Seeps, Vents, Oxygen Min. Zone)

We invite suggestions for additional or alternative symposium topics. We will invite keynote speakers for each topic of the symposium, with the final selection of topics based upon abstract submissions. A compendium of abstracts will be printed for the symposium.

Hosting Organizations / DSBS Coordinators:

Monterey Bay Aquarium Research Institute / Drs. J.P. Barry and B.H. Robison
Monterey Bay Aquarium / Drs. C. Harrold and R.E. Kochevar
P.O.Box 628, Moss Landing, CA 95039
U.S.A.

Tel. (408) 775-1726, Fax (408) 775-1645

e-mail: barry@mbari.org

internet: <http://www.mbari.org/>

Call for a New International Congress of Zoology

Dr. F.D. Por and R.M. Polymeni are looking for response concerning the feasibility of a New International Congress of Zoology, possibly to be convened in Athens, sometime during 1999 or 2000.

The First International Congress of Zoology was held in Paris, in 1889. Seventy years later, the XVIth Congress in Washington recommended the discontinuation of the congresses because of the feeling that Zoology had split into too many unrelated specialized fields. Nonetheless, a last XVIIth rump Congress was held in 1972 in Monte Carlo. The idea was advanced that the International Conferences on Systematic and Evolutionary Biology would replace the defunct Zoological Congresses at a higher level. After several meetings of the ICSEB, it became evident that they did not live up to this expectation.

We are ready to try to bring forward again, the rich and unifying aspects of Zoology and to reassert its general global, human and philosophical role. We are hoping for the approval and support of the zoological diaspora. The best encouragement will be to send us suggestions regarding the themes and the structure of the proposed New International Congress of Zoology. More important again, we need personal commitments to help organizing symposia, workshops and hints of possible funding sources. We shall need even at an early stage to establish an active and representative Action Committee. Understandably, we shall be able to appeal for funding only after having obtained convincing public support and after having a prestigious enough Committee in place.

Please contact:

Dr. Rosa Polymeni
University of Athens, Department of Biology
15784 Athens, Greece
Tel.: 30.1.7284364 / Fax: 30.1.7243325
e-mail: rpolime@atlas.uoa.gr

FIRST ANNOUNCEMENT

FOURTH INTERNATIONAL CRUSTACEAN CONGRESS
and including the
THIRD EUROPEAN CRUSTACEAN CONFERENCE
1998 ANNUAL SUMMER MEETING OF THE CRUSTACEAN SOCIETY
July 20-24, 1998
AMSTERDAM
The Netherlands

ICC 4 Secretariat

It is a great pleasure for me to announce and invite you to attend the fourth International Crustacean Congress - ICC 4 to be held on Monday 20 through Friday 24, with registration on Sunday 19, 1998 in Amsterdam, The Netherlands. The Congress is organized by the "Stichting Crustacea", which contains the organizing committee members. In addition, ICC 4 will also host the Third European Crustacean Congress and the 1998 Annual Summer Meeting of the Crustacean Society.

The primary objective of this Congress is to bring together the international scientific community, specialized in the study of crustaceans.

We look forward to a fruitful exchange of ideas and to meeting an interesting and diverse gathering of individuals from all over the world who share an involvement in the fascinating field of crustacean studies.

We hope to see you in Amsterdam in 1998.

Scientific programme:

The all-over theme of this congress will be: Crustacea in the biodiversity crisis.

Papers on all aspects of all groups of crustaceans may be submitted. Both invited lectures and contributed papers will be organized according to the following subthemes:

- Systematics, Evolution, Phylogeny, and Paleontology
- Development, Larval Biology, and Life Histories
- Ecology and Behaviour
- Physiology, Biochemistry; Genetics and Molecular Biology
- Fisheries, Aquaculture, Pollution, and Toxicology

Every morning there will be a plenary session with invited speakers. After lunch there will be 15 parallel sessions as well as poster presentations.

More about the scientific programme will be forthcoming in the 2nd Announcement.

Fred SCHRAM
Chairman ICC 4, Amsterdam

The filled-in first announcement has to be sent to:

ICC 4
c/o Wil van Zijl
University of Amsterdam
Vakgroep SEP
P.O.Box 94766
NL-1090 GT Amsterdam
The Netherlands

tel.: +31 20 525 6635 / 6435 /5422

fax: +31 20 525 5402

e-mail: zijl@bio.uva.nl

schram@bio.uva.nl

International Conference on the Biology of Coastal Environments (ICBCE97)

Bahrain, Arabian Gulf

We cordially invite you to participate and come to Bahrain, a place of ancient history and modern life. Bahrain offers a wide variety of historical places, shopping centres, beaches, and a wide choice of tourism activities.

Organizers: Department of Biology, College of Science, University of Bahrain, Environmental Research Centre, University of Bahrain

Topics: Aquaculture & fisheries; coral reefs; intertidal zone; mangrove; marine pollution, supralittoral zone.

Conference format: The conference will consist of plenary lectures, oral presentations and a poster display. Selected papers will be published in a special volume of Estuarine, Coastal and Shelf Science (ECSS).

Deadlines:

- * 1 NOVEMBER 1996: Deadline for submission of registration forms and abstracts
- * 1 DECEMBER 1996: Notification of acceptance of oral and poster presentation
- * 15 JANUARY 1997: Deadline of early registration

* 28 FEBRUARY 1997: Submission of complete paper.

Exhibition: An exhibition of equipment and publications related to the theme of the conference will be held concurrently at the venue. Delegates wishing to participate in the exhibition are requested to contact the chairman of the organizing committee for further information.

For further information contact:

Dr. Jameel ABBAS
Chairman, Organizing Committee
Director, Environmental Research Centre
University of Bahrain, P.O. Box 32038
Isa Town, STATE OF BAHRAIN
Tel. (0973)688316 // Fax: (0973)682582
E-mail: icbce97@internic.uob.bh
<http://www.uob.bh/icbce97.htm>

**5th International Conference on
Invertebrate Neurochemistry & Neurophysiology (ICINN)**
(September 7-11, 1997)
Eliat, Israel

The 5th Conference on Invertebrate Neurochemistry and Neurophysiology (ICINN) will be held on September 7-11, 1997, at the King Solomon Hotel, Eliat, Israel.

The topics of the Conference have been extended to include insects and other invertebrates in the following fields: Neurophysiology, Chemistry, and Molecular Biology of Regulation Peptides, Neurotransmitters, Hormone Receptors and Ion Channels, Morphology and Development of the Nervous System.

The programme will consist of invited lectures and submitted oral and poster presentations.

The Conference will take place in Eliat, which is a beautiful seaside resort on the shores of the Red Sea, with breathtaking scenery, on the edge of the world famous Coral Reefs and the Sinai Desert, offering every possible experience in, on, under and around the water.

The second circular containing further details will be mailed shortly.

Thank you in advance for your kind cooperation and hoping to meet you in sunny Eliat in the fall of 1997.

Yours sincerely,

Dr. Miriam ALTSTEIN
Conference Chairperson
Department of Entomology, Volcani Center, ARO, Israel

For more information please apply to:

ICINN'97 Conference Secretariat
c/o Carmel Conference Organizers
P.O. Box 1912, Ramat-Gan 52532, Israel
Tel: 972-3-5754040, Fax: 972-3-5753107

... NEWS & NOTES ... NOTES & NEWS ... NEWS & NOTES ...**New catalogue of harpacticoid copepods**

Philippe Bodin lets us know that the new version of his catalogue is now ready and he can send the computer disc (w.p. WORD6) to people who have sent him a cheque for 120 FF (made out in French francs and to his name). But he can also send the files by e-mail as (attachments) if it is preferred.

About the index, you must notice that pagination is wrong: First because of a modification of the presentation of the paragraphs after the pagination and secondly, this pagination depends on the computer drivers, i.e. on each computer. But it is not a problem with WORD, because it is so easy to search a word. The important thing is that scientific names are mentioned.

As a result of a meeting with F. Fiers in Brussels, an updated version in English is prepared for publication as a paper by the end of 1997 by the Belgian Royal Institute of Natural Sciences. This version will be available on computer disc as well. In order to avoid sending expenses the volume (around 300 pages!) will be presented at the next congresses such as the 4th International Congress in Amsterdam in July 1998.

New Journal of Plankton

The Plankton Society of Japan is preparing a new English-language journal, *Plankton Biology and Ecology*. *Plankton Biology and Ecology* will publish full-length papers, reviews, and notes dealing with any aspect of biology and ecology of marine and freshwater plankton, and their interactions with the environments in any aquatic systems, and is open to all scientists of the world. *Plankton Biology and Ecology* will be published twice a year and the first issue will be in June 1997. For the members of the Plankton Society of Japan, the society supports the cost of the first twelve printed pages of a full-length paper, 20 pages of a review paper, and four pages of a note. Non-member author(s) will be charged full printing costs of ca. Y 6,000 per page. For each paper, the author(s) will receive 50 reprints free of charge.

Bulletin of Plankton Society of Japan will be published in Japanese language from 1997.

The subscription rate for foreign members is Y 4,000 per year for 1997, which covers both *Plankton Biology and Ecology* and *Bulletin of Plankton Society of Japan*.

For further information and instructions, please contact:

Dr. S. Nishida (Editor-in-Chief) of
Ocean Research Institute, University of Tokyo,
1-15-1, Minami-dai, Nakano-ku, 164, Tokyo, Japan.

Trans-Atlantic Study of *Calanus finmarchicus***TASC**

Coordinator and contact person: Professor Kurt Tande, University of Tromsø
9037 Tromsø, Norway

Telephone: +47 77 64 45 24 - Fax: +47 77 64 60 20

Email: kurttt@nfh.uit.no - Web: <http://calanus.nfh.uit.no/TASC.HTML>

MARINE BIOLOGICAL CENTER (Japan)

Research Subjects

The Center has initiated research in the following areas of marine biology:

1. On ecology of commercially important fish in seas around Iriomote Island
Research began in 1984 including a study of the organisms on which the fish feed.
2. On macro-zooplankton
Since 1979, employing a large plankton net, studies have been carried out mainly in Suruga Bay and the Nansei Islands regions.
3. On plankton in coastal areas
Surveys have been conducted in the seas around Iriomote Island and in Suruga Bay.

Application for Study of Biological Specimens

All communications regarding Marine Biological Center, Shimizu, and the biological samples including the CSK International Zooplankton Collection should be addressed to:
Curator

Marine Biological Center, Tokai University

Orido 3-20-1, Shimizu, 424, Japan

Tel: 0543-34-0411 Ext. 2605

BIOBLITZ

A tool for biodiversity exploration, education, and investigation

Illustrated using the data, reports, and accounts taken during the 24-hour BioBlitz expedition to Kenilworth Park and Aquatic Gardens National park hard upon the banks of the Anacostia River at the heart of the urban wilderness of Washington D.C. (May 31 - June 1, 1996). The name and concept of the BioBlitz is not registered, not copyrighted, not trademarked, and not a government thing. Its just an idea that can be used, adapted, and modified by any group, who should freely use the name BioBlitz for their own purposes.

Join the BioBlitz E-mail Discussion Group

Simply send an e-mail message to: listproc@rana.im.nbs.gov. In the body (not the subject line put: subscribe bioblitz <your name>. Send it off and you will get a confirmation message from the computer regarding your subscription

Janet Reid, Washington

Copepod species in the 1996 IUCN Red List of Threatened Animals

The 1996 IUCN Red List of Threatened Animals, published by the World Conservation Union and other organizations, has now appeared. I recommend addition of 62 species of calanoids, 9 cyclopoids, and 6 harpacticoids. Drs. M. Hamer, T.M. Iliffe, and B. Sket also made several recommendations. The 3 species of calanoids and 8 harpacticoids that were included in the previous IUCN list are included in this one as well. According to available

information, their status has not changed. Copies of the list have been deposited in the MONOCULUS and Wilson Libraries, and I will be pleased to send copies on request.

It is often difficult to judge the conservation status of continental copepods, which are undercollected in many parts of the world. Mainly species known from better studied areas were included. Owing to the efforts of, to name only a few, Bayly and Hamond in Australia, Dumont and co-workers in central Africa, Ranga Reddy in India, Rayner in southern Africa, and Stepanova in Russia, certain regions and taxa, especially calanoids, have become much better known in recent years. I depended heavily on the information that these and other colleagues have brought forward on the limitations of species distributions. Thanks to you all!

My recommendations emphasized species of epigeal perennial and ephemeral waters for several reasons. Such waters are likely to be included in ordinary limnological surveys, therefore their inhabitants, although often highly seasonal, have some chance of being recorded. Moreover, ephemeral habitats are under particular pressure for human alteration worldwide. Species from special habitats such as hot springs, whose distribution is likely to be restricted to similar situations, were included. In the case of single records, even from subterranean habitats and springs, I included the species only if the surrounding area seemed to be well-collected. Species of subterranean habitats, once recognized, have a way of turning up in similar environments even quite far away, as demonstrated by the experience in Europe. The taxonomy of the calanoids tends to be better worked out than that of other groups. Many named subterranean taxa (especially cyclopoids) are distinguished by rather minor morphological characters, and their biological isolation remains to be demonstrated. A special case is represented by the "species-flocks" of cyclopoids and harpacticoids which have been described from Lake Baikal, now under some threat of pollution. Because it is unclear how carefully areas surrounding the lake have been prospected for these species, from Baikal only the endemic planktonic calanoid *Epischura baikalensis* was listed. Another special case is the semiterrestrial wetlands of central Brazil, particularly the hillside flush marshes known as "wet campos", which support a highly diverse meiofaunal community including many copepods. Because wet campos outside reserves are often drained for truck farming, several species known only from wet campos were listed as "conservation dependent". Species for which taxonomic problems remain to be resolved and subspecific taxa were not included.

Unfortunately, contributors to the 1996 list of Crustacea worked under a rather short deadline. It was impossible, given the time frame, to communicate adequately with colleagues, so most species were selected on the basis of published information. In order to improve the next IUCN list, I welcome discussion and recommendations from interested persons, who will of course be acknowledged.

Janet Reid, Washington

... STUDYING ABROAD ...

Studying and research in the U.S.A.

General

Graduate students can apply for financial assistance through home-country assistance programmes, U.S. government programmes, private international programmes or individual university departments.

U.S. Government Assistance

The Fulbright Programme, founded to encourage mutual understanding between the people of the United States and other countries, offers awards for graduate and postgraduate students/scholars and researchers. Postgraduate lectureships are also available. Applicants must apply to be approved by an appropriate agency in the home country. If there is a Fulbright Commission in your country, inquire about the types of grants available; if not, inquire at a U.S. Information Service (USIS) office.

In some so-called developing countries, support for short-term graduate study or master's level degree study may be available through programmes sponsored by the U.S. Agency for International Development (USAID).

Private U.S. Sources and International Organisations

Private U.S. agencies, foundations, business corporations and professional associations often award financial aid in the interest of furthering international exchange. International organisations such as the United Nations and the Organization of American States (OAS) are other possible sources of financial aid. To address them, do not write general requests to these large institutions, but use references available in the advising center to find specific awards or grants.

U.S. Universities

Many foreign graduate students finance their U.S. education through assistantships. To locate likely sources, first consult the 'Directory of Graduate Programs' published by the Council of Graduate Schools, and available in your advising center.

Departments award fellowships on the basis of academic merit. They do not usually cover the total cost of living and studying.

Assistantships are cash awards which require the performance of services related to the field of study. There are several types of assistantships: Teaching assist., research assist. and administrative assist.

Foreign applicants must compete with U.S. students. Doctoral students are more likely to receive support than master's candidates. The most important factor in selection is academic achievement and promise in the field of study. Previous teaching experience should be mentioned.

To obtain more information and advice, please contact the American embassy, consulate or United States Information Service (USIS) in your country.

R. McLaughlin, Oldenburg

LITERATURE LITERATURE LITERATURE

(Sources marked by an asterisk* are donated to the MONOCULUS library)

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News from Candidate Members

Maria Joao Santos, Porto:

I was born in Barcelos, Portugal, in 1965. I received the diploma in biology from the University of Porto, Portugal in 1987. Since 1987 I am an assistant lecturer at the University of Porto. I am currently working towards my doctoral degree in parasitology, where I am studying the parasitofauna of sea bass (*Dicentrarchus labrax* L.) from Portugal. My research interests include parasite of fishes, mainly Metazoan.

Eugenia Bandera, Sevilla:

I am working on my Ph.D. at the Marine Biology Laboratory of the University of Seville under the guidance of Dr. Pablo J. Lopez-Gonzalez. My research deals with the taxonomy and ecology of harpacticoid copepods in Algeciras Bay (Southern Spain). I am studying the development and structure of the copepod community through the bay for a year's period. I am trying to relate species composition and some diversity indices of copepod populations along the Algeciras Bay with the effect of environmental factors. For the moment my work is mainly the identification of the species and possible taxonomic problems.

Adrienne E. DeBiase, Aiken:

I received a Bachelor of Science degree in biology from Loyola University of Chicago in 1983 and a Master of Science degree in zoology from the University of Georgia in 1987. Since receiving my M.S. degree I have been working as a research technician with Dr. Barbara Taylor at the University of Georgia's Savannah River Ecology Laboratory. The lab is located on the Savannah River Site (SRS), a U.S. Department of Energy Reserve in Aiken, South Carolina, USA. We have been involved in basic research on zooplankton as well as in studies of the effects of industrial activities on zooplankton populations of the SRS.

My research interests include invertebrate conservation and also the ecology and biogeography of copepods. I am especially interested in the calanoid copepods that occur in the thousands of isolated wetland ponds of the southeastern United States. Currently, I am involved in long-term studies of a calanoid copepod population from one of these ponds. I am also trying to learn taxonomy.

Christian D. Jersabek, Salzburg:

Personal details: Born on November 27th, 1962, in Klagenfurt, Austria.

Study of Zoology: At the Paris-Lodron University of Salzburg. Erection of a log cabin to be adapted as a field station at an Alpine lake in the Northeastern Limestone Alps, Austria (1987). Master's degree on 'limnological aspects of an Alpine karst lake with extreme fluctuations in water level' (1989), doctoral thesis on reproduction of co-occurring Alpine Diaptomidae (1993).

Running projects/employment: Working on diverse projects concerning Alpine lakes and ponds, with emphasis on community ecology of Rotifera and Microcrustacea; trophic interactions and top-down effects of planktivorous amphibians and fish in high altitude lakes. Since 1991 free-lance worker on contract to the government of Salzburg, monitoring phyto- and zooplankton development in the province's lakes. Since 1992 lecturer at the University of Salzburg, Institute of Zoology, lectures and seminars on aquatic ecology and methodology, trophic interactions in lake ecosystems, ecology and taxonomy of freshwater micrometazoa (Rotifera, Cladocera, Copepoda). Since 1995 lecturer at the UNESCO International Postgraduate Course on Limnology for students from developing countries (Austrian Academy of Sciences, Mondsee).

Research interests: Major scientific interests currently concerned with 1) reproductive aspects (e.g. mating behaviour), postembryonic development, and coexistence of diaptomid copepods in Alpine lakes, and 2) ecology, taxonomy, and distribution of Alpine Rotifera.

Scientific publications: On ecology and taxonomy of rotifers, reproductive biology, and postembryonic development of copepods, ecology of amphibians and fish in Alpine lakes.

Marleen De Troch, Gent:

It is a pleasure for me to introduce myself as a young copepodologist. I finished my biology studies two years ago (1995). In my thesis I studied marine tropical fishes and their diet.

Looking at the food of these animals, I got fascinated by the diversity of the small creatures called copepods. So I decided to start my PhD on 'biodiversity of harpacticoids associated with tropical seagrass beds'. This summer I took samples in Thalassia, Halophila, Halodule, and Syringodium beds in Kenya and Zanzibar.

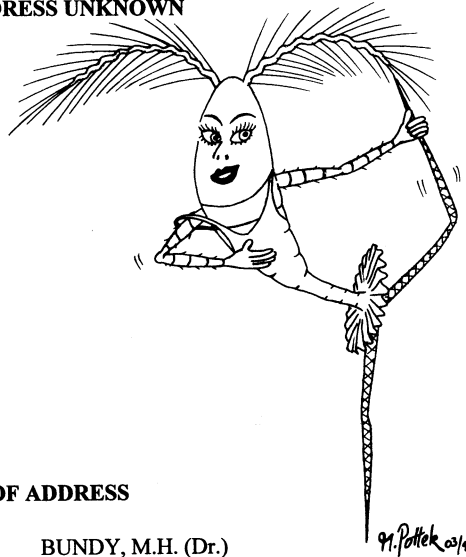
I am planning to sample comparable seagrass beds in Mexico and the Philippines.

REMOVED - ADDRESS UNKNOWN

DIEL-CHRISTIANSEN, Sabine (Dr.)
Allerskehre 40
D-22309 Hamburg
GERMANY

MARINOV, T. (Dr.)
Aquarium
Varna
BULGARIA

STEIB, Karl (Dr.)
In den Giesen 7
D-68723 Offersheim
GERMANY



CHANGE OF ADDRESS

AHNERT, Ahmed (Dr.)
Alfred-Wegener-Institut für Polar- u.
Meeresforschung - Tiefseeforschung -
Columbusstrasse
D-27568 Bremerhaven
GERMANY
Tel: (49) 471-4831-729
Fax: (49) 471-4831-724
E-mail: 100611.367@compuserve.com

ARNOFSKY, Pamela (Dr.)
Woods Hole Oceanographic Institution
Redfield 1-44
Woods Hole, MA 02543
U.S.A.
Tel: (1) 508-289-3465
Fax: (1) 508-457-2134
E-mail: parnofsky@mail.who.edu

BUNDY, M.H. (Dr.)
Great Lakes Environmental Research Lab.
2205 Commonwealth
Ann Arbor, MI 48105
U.S.A.

FOSSHAGEN, A. (Dr.)
Dept. of Fisheries and Marine Biology
University of Bergen
Bergen High Technology Center
N-5020 Bergen
NORWAY
Tel: (47) 55584400
Fax: (47) 55584450
E-mail: audun.fosshagen@ifm.uib.no

GRYGIER, Mark, J. (Dr.)
Associate Research Scientist
Lake Biwa Museum
Oroshimo 1091, Kusatsu, Shiga
525 JAPAN

KUNZ, Helmut (Dr.)
Im Almet 8
D-66132 Saarbrücken
GERMANY

MARCOGLIESE, David J. (Dr.)
St. Lawrence Centre
Environmental Conservation
105 McGill, Suite 700
Montréal (Québec) H2Y 2E7
CANADA
Tel: (514) 283-6499
Fax: (514) 496-7398
E-mail:
MARCOGLIED@CPCSL.AM.DOE.CA

MARCOTTE, Brian M. (Dr.)
SAI Foundation
47 South Angell Street
Providence, RI 02906-5206
U.S.A.
Tel: (1) 401-521-2661

ROCHA, Carlos E. F. da (Dr.)
Universidade de São Paulo
Inst. de Biociências
Dept. Zool.
Caixa Postal 11461
05422 970 São Paulo
BRAZIL

WALOSSEK, D. (Prof. Dr.)
Universität Ulm
Sekt. f. biosystem. Dokumentation
Liststr. 3
D-89079 Ulm
GERMANY

ZOEA-NEWSLETTER
Laboratorio de Biología Marina
Facultad de Biología
Apdo. 1095
E-41080 Sevilla
SPAIN

E-MAIL ADDRESSES

José Bresciani (Copenhagen): TKO@KVL.DK



ADDITIONAL E-MAIL ADDRESS

Janet Reid (Washington): REID.JANET@nmhh.s

CHANGE OF E-MAIL ADDRESS

R. Böttger-Schnack (Kiel): dschnack@ifm.uni-kiel.de
C. Herbert Fernando (Waterloo): chfernando@sciborg.uwaterloo.ca
Audun Fosshagen (Bergen): audun.fosshagen@ifm.uib.no
Grant Gardner (Newfoundland): ggardner@morgan.ucs.mun.ca
Rubens M. Lopes (Curitiba): rmlopes@cwmatrix.com.br
Luisa Motta Schutze (Rio de Janeiro): mlmschutze@ax.apc.org.br



The World Association of Copepodologists (W.A.C.)
Application for Membership

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I authorize my name, address, and data regarding my research interests to be entered in the database maintained by the WAC and made available to interested colleagues.

Signature and Date: _____

Nominations: Mail this form to:

Dr. Eduardo Suárez-Morales
General Secretary, WAC
ECOSUR-Chetumal. A.P. 424.
Chetumal, Q.Roo 77000. MEXICO

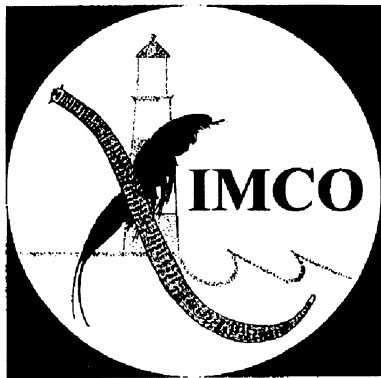
Upon receipt of this form, payment of one or more year's dues, and approval by the Executive Council, each applicant will be considered a Candidate Member and will begin receiving the *MONOCULUS*-Newsletter. A list of Candidate Members will be presented to the general membership at the next regular business meeting (at the Seventh International Conference on Copepoda). Candidates approved by the general membership become Active Members.

Dues: Dues (US \$20.00 per annum) payable by Founder, Active and Candidate Members may be paid up to two years in advance. Dues may be paid in person at WAC conferences, or by mail to :

Dr. John Fornshell
Treasurer, WAC
Thomas Jefferson High School for Science &
Technology. 6560 Braddock Rd., VA 22312
Alexandria, USA.

Europeans may send their personal Euro-Cheques in US dollars. Americans and Canadians should send their personal checks payable to WAC, while all others should use international money orders or bank drafts (cash) in US \$ and make these payable to an account to be set in the United States.

Updated March, 1997



TENTH INTERNATIONAL MEIOFAUNA CONFERENCE (XIMCO)

to be held at the

UNIVERSITY OF PLYMOUTH (U.K.)

on

27th-31st July 1998

Jointly organized by Plymouth Marine Laboratory and the University of Plymouth

Conference Theme. The conference will welcome contributions on all aspects of the ecology, physiology, behaviour and systematics of marine and freshwater meiofauna. Specific themes have not yet been decided upon but the following have been suggested by the organising committee: - 1. Biodiversity: global and regional patterns and processes in individuals to communities; 2. Ecosystem function; aspects of ecosystem function in polar, temperate, tropical, freshwater, coastal marine and deep sea habitats; 3. Specialist studies in systematics, behaviour and genetics.

Conference organization. The conference will be held in the Robbins Building of the University of Plymouth and very reasonably priced accommodation will be provided in the University Hall of Residence attached to the conference centre, close to the centre of town. Lecture (and poster) sessions will be scheduled for the morning and afternoon each day except Thursday afternoon when there will be a coach ride over the Dartmoor National Park to the Conference. Dinner in the mediaeval banqueting hall of Buckland Abbey. There will also be an evening excursion up the Tamar estuary by boat. Visits to country houses, historic sites and coastal villages will be arranged for accompanying persons depending on demand. The full conference fee will probably be in the region of £130 (including the dinner) and the preferred method of payment will be by credit card.

Registration. THIS IS THE ONLY GENERAL NOTIFICATION WHICH WILL BE GIVEN. If you wish to be put on a mailing list for further notification and for registration forms you must fill in the expression of interest slip and return it by post, fax, or E-mail to the address below. Future communication will be conducted primarily by E-mail; details will be sent by post only to those people who return this form but are not on E-mail.

XIMCO (J.M. Gee); Plymouth Marine Laboratory; Prospect Place; West Hoe; Plymouth PL1 3DH; U.K.
Tel. (0)1752 633100; Fax. (0)1752 633101; E-mail ximco@plymouth.ac.uk

EXPRESSION OF INTEREST. Please return by post, fax, or E-mail before 31st August 1997.

Tick where appropriate

- Please put my name on the conference mailing list for further information.
- It is probable that I will be attending the conference.
- It is probable that I will be accompanied by persons.
- I plan to present a paper / poster whose theme might be

NAME.....

ORGANIZATION.....

POSTAL ADDRESS.....

Telephone..... Fax..... E-mail

Fields of interest (please check () your major and minor fields and indicate, if applicable, the taxonomic group (at any level) dealt with (e.g. Copepoda, Calanoida, Cyclopidae, *Temora*, *Tisbe furcata* etc.), the geographic area (e.g. Pacific, North Sea, Brasil, Antarctic etc.), and the ecological areas (e.g. lakes, interstitial, phytal, deep-sea, benthos etc.).

Discipline	Major	Minor	Taxonomic groups	Geogr. area	Ecological area
Systematics (order, family, genus or species, as specific as possible)	()	()	_____	_____	_____
			_____	_____	_____
			_____	_____	_____
			_____	_____	_____
Zoogeography	()	()	_____	_____	_____
			_____	_____	_____
			_____	_____	_____
Morphology organ system (specify)	()	()	_____	_____	_____
			_____	_____	_____
			_____	_____	_____
Ecology subdiscipline (e.g. autecology, life history)	()	()	_____	_____	_____
			_____	_____	_____
			_____	_____	_____
Physiology subdiscipline hormone, receptor physiology etc.)	()	()	_____	_____	_____
			_____	_____	_____
			_____	_____	_____
Behaviour	()	()	_____	_____	_____
Biochemistry	()	()	_____	_____	_____
Genetics	()	()	_____	_____	_____
			_____	_____	_____
Embryology	()	()	_____	_____	_____
Larval development	()	()	_____	_____	_____
			_____	_____	_____
Evolution	()	()	_____	_____	_____
Parasitology	()	()	_____	_____	_____
Planktology	()	()	_____	_____	_____
Aquaculture	()	()	_____	_____	_____
Others (specify)	()	()	_____	_____	_____
	()	()	_____	_____	_____

MONOCULUS - Survey of Copepodologists 1997

COPEPOD RESEARCHERS' DIRECTORY FORM

(Please complete in typewrite or in capital letters
and return to the editor of MONOCULUS)

Last name (family name): _____ Dr. Mr. Ms.

First name: _____

Position (e.g. student, curator, professor etc.): _____

Mailing address:

Postal code: _____

City and Country: _____

FAX number: _____ Phone number: _____

E-mail: _____

Date of birth: _____

Highest academic degree: _____

Brief titles of your current projects in copepod research:

1. _____

2. _____

3. _____

4. _____

5. _____

